

USE CATEGORY**C**

This procedure shall be available to workers, though not necessarily at the work location. This procedure may be performed without referring to the procedure; however, the user is still responsible for adhering to the procedure.

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See the "List Of Operations" table for a complete listing of the operations contained in this manual.

**Go to List of
Operations**

TECHNICAL MANUAL**MD-80030, ISSUE 37****ENVIRONMENTAL ANALYTICAL
PROCEDURES**

TR - Lori Marion-Moss

Trailer 24

CHANGES INCORPORATED

- ☐ New
- ☒ Replace Operation 5002
- ☐ Insert (New)
- ☐ Remove Ops.
- ☐ Complete Reprint

This issue has been reviewed and approved by the TR, Lori Marion-Moss.

Lori Marion-Moss 01-05-06
Date

This issue is authorized for use by Advance Change Order on file in Technical Manuals.

Jeff Stapleton 01-05-06
Manager, Environmental Compliance and Labs

PUBLICATION RECORD

MANUAL		OPERATION				
ISSUE	APPROVAL DATE	OP NO	ISSUE	ACO	EFFECTIVE DATE	OPERATION TITLE
34	09-04-02	1201	2	020289MD	08-08-02	Receipt and Processing of Radiological Samples
		1202	1	020289MD	08-08-02	Calibration and QA/QC Overview for Analytical Services Laboratory
		2000	2	020289MD	08-08-02	Preparation of Laboratory Reagents for Radiological Environmental Monitoring
35	11-17-03	1100	2	030262MD	11-17-03	NPDES Parameters in Effluent Water
36	03-09-04	1300	2	040036MD	03-10-04	Basic Operation of the Atmospheric Release Advisory Capability (ARAC) Site System at Mound DELETED WITH THIS ISSUE
		1301	2	040036MD	03-10-04	Inspection, Maintenance, and Calibration of Atmospheric Release Advisory Capability (ARAC) Meteorological Sensors DELETED WITH THIS ISSUE
		3009	2	040036MD	03-10-04	Verification of Continuous Air Monitoring and Bubbler Operations DELETED WITH THIS ISSUE
		3010	2	040036MD	03-10-04	Preventive Maintenance for Tritium Bubblers DELETED WITH THIS ISSUE
	03-09-04	3013	2	040035MD	03-10-04	Tritium Bubbler Flow Calibration
	02-26-04	4102	2	030263MD	03-01-04	Liquid Scintillation Analysis of Water Samples
	05-04-04	4201	2	040060MD	05-06-04	Plutonium and Thorium in High Volume Air Filters by an Acid Leach Method
	02-16-04	5003	2	040009MD	02-17-04	Plutonium-238 Soil Screening by Low-Resolution Gamma-Ray Spectroscopy, Using the Canberra System 100 Multichannel Analyzer Systems DELETED WITH THIS ISSUE
		5006	2	040009MD	02-17-04	Liquid Scintillation Calibration Procedure DELETED WITH THIS ISSUE
		5007	2	040009MD	02-17-04	Low Background Gas Proportional Counter LB-5500 Operation DELETED WITH THIS ISSUE
	02-16-04	5011	2	040014MD	02-17-04	Filling of Liquid Nitrogen Dewars at the Mound Gamma Laboratory
37	01-05-06	<input checked="" type="checkbox"/> 5002	2	060002MD	01-09-06	Isotopic Screening Procedures for the Mound Soil Screening and Gamma Spectroscopy Facility

****NOTE:** The references in issue 32 were not updated due to the change of all the Operation numbers. The TR will update the references as each Operation is reissued. In the meantime, please check the List of Operations to link the old Operation numbers with the new Operation numbers.

NOTE: For publication records of previous issues, see the historical files in Technical Manuals.

ENVIRONMENTAL ANALYTICAL PROCEDURES**LIST OF OPERATIONS**

Old Operation Number	New Operation Number	Issue	Title
9287	1000	1	Response to Elevated Environmental Samples
9288	1001	1	Response to Elevated Effluent Samples
9326	1002	1	Selection and Utilization of Vendor Laboratories for Environmental Services
N/A	1003	1	Software Quality Assurance
8218	1100	2	NPDES Parameters in Effluent Water
9301	1101	1	Compliance Procedure for Reporting and Notification of SDWA Monitoring Results
9339	1200	1	Radioactive Source Receipt and Control
9345	1201	2	Receipt and Processing of Radiological Samples
N/A	1202	1	Calibration and QA/QC Overview for Analytical Services Laboratory
9303	1300	2	DELETED WITH THIS ISSUE
9304	1301	2	DELETED WITH THIS ISSUE
9309	2000	2	Preparation of Laboratory Reagents for Radiological Environmental Monitoring
9302	2001	1	Neutralization of Spent Acids Prior to Sanitary Discharge
9313	2100	1	Environmental Monitoring Radiological Laboratory Waste Stream Declaration and Waste Characterization
9081	3000	1	Routine Collection of Effluent Water Samples for Radiological and NPDES Parameters
9290	3002	1	Collection of Vegetation Samples for Radiological Analysis
9292	3003	1	Collection of Groundwater for Radiological Analysis
9294	3004	1	Sampling of Subsurface Waters
9296	3005	1	Sediment Collection for Radiological Analysis
9299	3006	1	Calibration of Particulate Radionuclide Air Sampling Units
9300	3007	1	Collection of Environmental Air Samples
9306	3008	1	Routine Collection of Potable Water Samples for SDWA Monitoring
9307	3009	2	DELETED WITH THIS ISSUE
9316	3010	2	DELETED WITH THIS ISSUE
9333	3011	1	Calibration of Liquid Effluent Monitoring and Sampling Equipment
9334	3012	1	Stack Flow Rate Calculation and Accuracy Determination
9336	3013	2	Tritium Bubbler Flow Calibration
9340	3014	1	Operation of Portable Environmental Air Sampling Units

ENVIRONMENTAL ANALYTICAL PROCEDURES**LIST OF OPERATIONS**

Old Operation Number	New Operation Number	Issue	Title
9279	3015	1	Collection of Onsite Arterial Water Samples
N/A	3016	1	Replacement of Bubbler External Inlet Filter
1385	4001	1	Leachable Plutonium in Solid Matrix
2722	4002	1	Distillation of Tritium in Solids
2781	4003	1	Distillation of Tritium in H ₂ O and Other Aqueous Base Liquids
9317	4004	1	Environmental Monitoring Alpha Spectroscopy Method
9331	4005	1	Estimated Analytical Combined Standard Uncertainty
9337	4006	1	Acid Dissolution
2208	4007	1	Tritium Quench Standards: Generation and Use
0083	4008	1	Preparation of Spiked Reference Standards for Aqueous Sample Matrix
0356	4009	1	Preparation of Spiked Reference Soil Samples
N/A	4010	1	Gross Alpha and Tritium in Solids
N/A	4011	1	Electrodeposition
N/A	4012	1	Separation of Plutonium and Americium by TRU Resin® Prepackaged Columns
N/A	4013	1	Calibration and Operation of Protean MP 9604
N/A	4014	1	Alpha Characterization of Oxidized Metal Surfaces
1263	4100	1	Plutonium and Thorium in Water by Co-precipitation Anion Exchange Method
1272	4101	1	Plutonium and Thorium Activity in Water Effluent
2261	4102	2	Liquid Scintillation Analysis of Water Samples
3266	4103	1	Uranium in Water by Co-precipitation Anion Exchange Methods
3271	4104	1	Uranium Activity in Water Effluent
0220	4105	1	Gross Alpha Radioactivity in Water Samples
1110	4200	1	Uranium in High Volume Air Filters by an Acid Leach Method
1162	4201	2	Plutonium and Thorium in High Volume Air Filters by an Acid Leach Method
2119	4202	1	Tritium Gas and Tritiated Water in Stack Effluent
2157	4203	1	Tritium Oxide Analysis in Ambient Air
9282	4204	1	Plutonium and Uranium in Stack Air by Acid Digestion and Anion Exchange
9335	4205	1	Analysis of Plutonium and Thorium on Paper Air Filters
9332	4300	1	Metals Analysis by Atomic Absorption Spectrophotometry
1355	5000	1	Plutonium and Thorium in Soil Using the Bicron Detector (Soil Screening)

ENVIRONMENTAL ANALYTICAL PROCEDURES**LIST OF OPERATIONS**

Old Operation Number	New Operation Number	Issue	Title
9283	5001	1	<i>Femto</i> -TECH Radon Survey Instrument Operation
9311	5002	2	Isotopic Screening Procedures for the Mound Soil Screening and Gamma Spectroscopy Facility
9312	5003	2	DELETED WITH THIS ISSUE
9318	5004	1	Isotopic Screening Procedures for the Mound Soil Screening and Gamma Spectroscopy Mobile Laboratory
9320	5005	1	Calibration of High-Resolution Gamma-Ray Spectroscopy Systems
9321	5006	2	DELETED WITH THIS ISSUE
9322	5007	2	DELETED WITH THIS ISSUE
9324	5008	1	Performance Check of the Packard Liquid Scintillation Analyzer 2750 TR/LL in the Environmental Mobile Laboratory
9327	5009	1	Analyzing Water for Tritium for the Mobile Laboratory
9329	5010	1	Soil Screening/Gamma Spectroscopy HPGe Energy Calibration and QA/QC Program Maintenance
9330	5011	2	Filling of Liquid Nitrogen Dewars at the Mound Gamma Laboratory
9341	5012	1	Calibration of the Mobile Laboratory LB5500 Low Background Gas Proportional Counter

TECHNICAL MANUAL

MANUAL TITLE	MANUAL NO.	ISSUE	USE CATEGORY
Environmental Analytical Procedures	MD-80030	37	C
TECHNICALLY RESPONSIBLE	ECN NO.	EFF. DATE	PAGE
Lori Marion-Moss	060002MD	01-09-06	6

☒ Denotes change

INTRODUCTION

1. PURPOSE

This manual provides a source of references as well as the laboratory procedures necessary to perform various environmental analyses at Miamisburg Closure Project (MCP).

2. SCOPE

This manual describes the analytical procedures performed by the Environmental Control Group at MCP.

3. PROCEDURE NUMBERS

Beginning with Issue 19 of MD-80030, new procedures will be assigned 4-digit numbers that are strictly sequential. That is, the numbers assigned to new operations will no longer represent the isotope or the matrix.

To avoid duplication of numbers, the originator of any ACO creating an Issue 1 operation must contact Technical Manuals to receive a number for that operation.

4. SAFETY AND HEALTH PHYSICS

Standard safety and health physics procedures, applicable to the analytical procedures and materials being analyzed, shall be observed at all times.